

REMARKS/ARGUMENTS

Claims 1-3, 5, 6, 8-15, 17-20, 22-26 and 28-30 were pending at the time of the Office Action dated April 6, 2007.

Summary of Rejections

Claims 1-3, 12, 28 and 29 were rejected under 35 USC § 103(a) over Huang et al, US 4,516,238 (“*Huang*”) in view of Green et al, US 5,687,324 (“*Green*”).

Claims 5, 6, 8-11 and 22-26 were rejected under 35 USC § 103(a) over *Huang* in view of *Green* and Cooperman et al, US 5,862,128 (“*Cooperman*”).

Claims 13-15 were rejected under 35 USC § 103(a) over *Huang* in view of *Green* and Widjaja et al, US 5,440,553 (“*Widjaja*”).

Claims 17, 18, and 30 were rejected under 35 USC § 103(a) over Huang et al, US 4,542,497 (“*A. Huang*”) in view of *Green*.

Claims 19-20 were rejected under 35 USC § 103(a) over *A. Huang* in view of *Green* and *Cooperman*.

Summary of Response

Claims 1, 12 and 17 are amended.

Claims 4, 7, 16, 21, and 27 were previously canceled.

Summary of Pending Claims

Claims 1-3, 5-6, 8-15, 17-20, 22-26, and 28-30 are currently pending following this response.

Applicant hereby requests further examination and reconsideration of the presently presented claims.

ACKNOWLEDGEMENT OF TELEPHONE INTERVIEW

Applicant wishes to thank Examiner Habte Mered for his time and for his consideration of the arguments presented by Applicant's representatives during the applicant initiated telephone interview of June 12, 2007. During the interview, the amendments to the independent claims 1, 12 and 17 presented with this Response were discussed, but no agreement was reached. Examiner referenced Figure 2 ("Background") of *Green* as a teaching of a "non-recirculating sort and trap stage" as claimed by Applicant. Applicant disagrees with this interpretation of *Green*, but agrees with Examiner's statement in the Office Action that "*Green* teaches an ATM switch with multicast capability that uses a feedback mechanism for resolving contentions" (Office Action, page 3). Examiner clarified during the interview that *Green* uses the feedback mechanism to resolve address contention in the arriving cells. Applicant observed that the independent claims discussed during the interview, and presented herein, have been amended to clarify that such a feedback mechanism is not required to resolve cell address contention for the reasons more fully discussed in this Response below. Examiner agreed to fully consider these amended independent claims upon receipt of a formal response, but that a new search may be required.

Applicant has amended all of the independent claims 1, 12, and 17 to more clearly specify the operation of the non-recirculating sort trap stage. Specifically, the independent claims have been amended to state that arriving cells may be aged and thereafter discarded by the non-recirculating sort-trap stage during subsequent time slots.

Applicant does not agree that *Green's* discussion of the background of the art teaches a non-recirculating sort trap stage as claimed by Applicant. However, in an effort to place this case into a condition for allowance, or to simplify the issues for an appeal, Applicant has

amended all of the independent claims to respond to Examiner's objections.

Response to 35 U.S.C. § 103 Rejection

Independent claims 1 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Haung* in view of *Green*. Independent claim 17 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over *A. Haung* in view of *Green*. The remaining dependent claims 2-3, 5-6, 8-11, 14-15, 18-20, 22-26, and 28-30 are allowable if the independent claims 1, 12 and 17 are allowable.

Background of this Response

This case is presently pending on the initial office action following Applicant's Request for Continuing Examination filed January 30, 2007. Claims 4, 7, 16, 21, and 27 were previously canceled in prior responses in this case. Applicant has already responded to most of Examiner's application of the art of record in prior Responses to prior Office and Advisory actions. In order to simplify this Response and expedite allowance, Applicant repeats and incorporates his prior remarks and arguments, without waiver thereof, as though set forth in verbatim herein. Applicant continues to respectfully traverse Examiner's application of the art of record, specifically including *Haung* or *A. Haung* in view of *Green*, as well of the propriety of combining any of those references or the other references of record with *Green*.

During the telephone interview summarized above, Applicant's representatives concluded that an amendment of the independent claims as discussed during the interview together with an additional analysis of *Green* and citation to support in the specification may be sufficient to place this case in a condition for allowance. Accordingly, and without waiver of Applicant's position on the remaining references or their combination, the discussion below is limited to the amendments to the independent claims 1, 12 and 17 presented herein and the

application of *Green* to those claims. A supporting citation to the specification is set also set forth below.

Response to the Rejection.

All of the claims, specifically including independent claims 1, 12, and 17 stand rejected under the application of either *Haung* or *A. Haung* in view of *Green* under 35 U.S.C. §103(a). All of the independent claims will be considered together in this response. Applicant respectfully traverses the rejection and submits that the prior art of record, specifically including *Green*, does not establish a *prima facie* case of obviousness as to the pending claims. According to MPEP 2142, three basic criteria must be met to establish a *prima facie* case of obviousness:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Similarly, the fact that the Examiner has the burden of proof with respect to the elements of the *prima facie* case of obviousness is also well defined in MPEP 2142:

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

Applicant is amending independent claims 1, 12 and 17. They now provide:

1. (Currently Amended) A switching system for a telecommunications network, comprising:
 - a) a first stage having input and output sides, said output side concentrated relative to said input side;

- b) a second stage having input and output sides, said input side of said second stage coupled to said output side of said first stage and said output side of said second stage being comprised of a plurality of outputs, wherein said second stage is a non-recirculating sort and trap stage that receives a plurality of cells having unique and non-unique destination addresses in a first time slot; and
- c) a trap buffer coupled to said second stage, wherein for a plurality of cells arriving, at said second stage, said second stage places each cell having a unique destination address on a selected one of said plurality of outputs at a next subsequent time slot, ages each cell having a non-unique destination address during subsequent sequential time slots until ~~said~~ the destination address becomes unique ~~for a subsequent time slot~~, and discards ~~the oldest said~~ aged cell if ~~the said~~ destination address does not become unique at a subsequent time slot.

12. (Currently Amended) A high performance broadband ATM switching system, comprising:

- a) a concentrator stage having a plurality of input ports for said switching system and a plurality of outputs, said concentrator concentrating cells entering said switch on said plurality of input ports onto said plurality of outputs by discarding idle ones of said plurality of inputs;
- b) a non-recirculating Batcher sorter trap stage having a plurality of inputs and a plurality of outputs, each of said plurality of inputs of said non-recirculating Batcher sorter trap stage coupled to a corresponding one of said plurality of outputs of said concentrator stage;
- c) a plurality of output queues, each one of said output queues having an input coupled to a corresponding one of said plurality of outputs of said non-recirculating Batcher sorter trap stage and an output port for said switching system, each one of said plurality of output queues buffering cells exiting said switching system which share a common destination address;
- d) said non-recirculating Batcher sorter trap stage places, during a selected one of a plurality of time slots, selected ones of a plurality of cells arriving thereat during a first one of said plurality of time slots onto a selected one of said outputs thereof if said selected ones of said plurality of cells has a unique destination address for said selected time slot; and
- e) said non-recirculating Batcher sorter trap stage further comprises a trap buffer wherein selected ones of said plurality of cells arriving thereat during said first one of said plurality of time slots is aged until a next subsequent one of said plurality of time slots and discarded if the destination address of the oldest one said aged ~~cell~~cells does not become unique at a subsequent time slot.

17. (Currently Amended) A multi-cast switching system, comprising:
- a) a broadcast network having input and output sides, said broadcast network receiving, on said input side, a plurality of source cells from at least one source and a plurality of empty copy cells, said broadcast network copying data from selected ones of said plurality of source cells to selected ones of said empty copy cells to produce copies of said source cells;
 - b) a non-recirculating Batcher sort-trap stage having input and output sides, said input side of said non-recirculating Batcher sort-trap stage coupled to said output side of said broadcast network for receiving said source cells and said copies of said source cells and said output side of said non-recirculating Batcher sort-trap stage being comprised of a plurality of outputs; and
 - c) for a plurality of arriving cells, said non-recirculating Batcher sort-trap stage places, in a first time slot, each cell having a unique destination address on a selected one of said plurality of outputs of said Batcher sort-trap stage, ages each cell having a non-unique destination address for said first time slot ~~in a buffer until~~ at a next subsequent time slot in a buffer for storing not more than a pre-determined number of cells in any one of said time slots, and discards the oldest of each said cell not having a unique destination address when said pre-determined number of cells having a non-unique destination address have been stored in said buffer in during any of said ~~subsequent~~ time slots;
 - d) wherein said plurality of arriving cells placed on the outputs of said Batcher sort-trap stage includes said source cells and said copies of said source cells.

[Emphasis added]

Green does not teach or suggest Applicant's aging and subsequent discarding of arriving cells

Green's description of the "Background" for his invention as set forth in his Figure 2 and at column 2, lines 10-42 is generalized and vague. Applicant respectfully continues his position that *Green's* elements 38, 44 and 46 do not teach or suggest a "non-recirculating sort and trap stage." Applicant also continues to contend that *Green's* "Feedback Network" 46 of Figure 2 is properly named ... i.e. it recirculates arriving cells. Accordingly, Applicant continues to contend that Examiner has not met his burden of proof that *Green* teaches or suggests, alone or in combination with any other art of record, any of Applicant's claims.

Applicant agrees, however, that *Green*'s "Background" Figure 2 discloses a "feedback mechanism for resolving contentions" as stated by Examiner at page 3 of the Office Action.

Ambiguous nomenclature aside, *Green* resolves address contention in arriving cells by a feedback control mechanism that acts to resolve the address conflicts at the cell arrival or input stage rather than during the passage of the arriving cells through a sort and trap stage to the output. This "Background" of approach of *Green* degrades switch performance or increases costs. As noted in *Green* column 2, lines 4-23, this "Background" approach requires multiple clock cycles or accelerated internal clock rates.

The balance of the *Green* patent *teaches away from* Applicant's embodiments. Indeed, a "feature" of *Green*'s invention is the use of a pre-fetch mechanism to solve this switch degradation problem [column 3, lines 23-27]. The *Green* invention uses a temporary input buffer 500 to store arriving cells as determined by a control signal to a rotator 520 specifying the number of cells being fed back during the previous cycle (block 780) before they are moved to the output network 420 (block 800). Any remaining cells in the temporary input buffer 500 are discarded [column 5, line 48 to column 6, line 13 and Figures 3 and 4].

Applicant does not require *Green*'s arrival cell processing. As set forth in the amended independent claims 1, 12 and 17 quoted above, Applicant ages any arriving cells with non-unique destination addresses and discards them if they do not subsequently become unique. Support for this claim language is found throughout the Specification, but in particular at paragraph [0025] and Figures 3a, 3b and 4. A multicast embodiment (Claim 17) is specifically discussed a paragraph [0031] *et seq* and Figure 4.

The specification paragraph [0025] provides in part:

Preferably, ...the cells identified as having non-unique addresses are temporarily stored in trap buffer 210 until a subsequent time

slot and then released back onto the lines 211-1 through 211-L of the non-recirculating trap substage 208. Of course, to preserve sequencing of the trapped cells, cells are released according to their age. *** [T]o enhance throughput of the switching system 180 under various load conditions, the depth of the trap buffer 210 may be increased. *** [T]he depth of the trap buffer 210 shall be identified as 'M.'

Consequently, *Green*, alone or in combination with any other reference of record, fails to teach or suggest Applicant's amended independent claims 1, 12 and 17. The remaining claims are dependent on claims 1, 12 or 17 and contain all of the elements thereof. Accordingly, all of the pending claims 1-3, 5-6, 8-15, 17-20, 22-26, and 28-30 are in a condition for allowance.

CONCLUSION

Consideration of the foregoing amendments and remarks, reconsideration of the application, and withdrawal of the rejections is respectfully requested by Applicant. No new matter is introduced by way of the amendment. It is believed that each ground of rejection raised in the Office Action dated April 6, 2007 has been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account No. 21-0765, Sprint. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

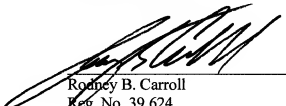
If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to telephone the undersigned at the telephone number given below.

Respectfully submitted,
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6-26-07

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